COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

D.T.E. NO. 01-20

REQUEST: Department of Telecommunications and Energy Information Requests to AT&T Communications of New England, Inc. and WorldCom, Inc.

DATE: August 1, 2001

DTE-ATT/WCOM 1-1: Calculate (a) expense-to-investment ratios for copper and fiber; and (b) the maintenance expense for the forward-looking plant, assuming the following facts:

1) Historic investment on a company's books consist of 100 miles of copper plant at a cost of $10 per mile and 10 miles of fiber plant at a cost of $1 per mile;

2) Current maintenance costs are $10 for copper plant and $0.10 for fiber plant;

3) The current prices for copper and fiber are $15 and $0.80 respectively; and

4) The forward-looking plant designs a network with 60 miles of copper and 50 miles of fiber.

Respondent: R. Mercer

RESPONSE: a) There are two possible answers for expense-to-investment ("E/I") ratios. First, there are "historic" E/I ratios calculated as the ratio of historic expenses to historic investments in each plant account. For the hypothetical data in this example, the historic ratio for copper and fiber, respectively, would be calculated:

$(E/I)_{historic\text{-}Cu}$ = $10/($10 * 100) = .01 (copper)

$(E/I)_{historic\text{-}Fi}$ = $0.10/($1 * 10) = .01 (fiber)

Second, there are what the FCC refers to as the "forward-looking

(FL)" operations factors, in which investments are updated to reflect current technology costs, not historic.[1] In this case:

$(E/I)_{FL\text{-}Cu} = \$10/(\$15 * 100) = .00667$

$(E/I)_{FL\text{-}Fi} = \$0.10/(\$0.80 * 10) = .0125$

A TELRIC-compliant model that uses E/I ratios in calculating expenses should use the forward looking plant-specific operations factors. These forward-looking factors are the appropriate choice because a TELRIC-compliant model can calculate total expenses associated with a given plant account by multiplying the E/I ratio for that account by the forward-looking investment in the account calculated by the model, and the forward-looking investment is based on current technology costs.

b) Based on using the forward-looking factors, total maintenance expenses would be as follows:

$$\text{Total Expenses} = (E/I)_{FL\text{-}Cu} * \text{Investment}_{FL\text{-}Cu} + (E/I)_{FL\text{-}Fi} * \text{Investment}_{FL\text{-}Fi}$$

$$= .00667 * (\$15 * 60) + .0125 * (\$0.80 * 50)$$

$$= \$6.50$$

Both HM 5.2a-MA and the FCC's Synthesis Model use the forward-looking operations factors calculated by the FCC. Assuming the FCC factors were based on the hypothetical data presented in this example, both models would calculate this result.

[1] In the Matter of Federal-State Joint Board on Universal Service, CC Docket 96-45, and Forward Looking Mechanism for High Cost Support for Non-rural LECs, CC Docket 97-160, Tenth Report and Order, Released November 2, 1999, ¶¶ 345, *et seq*; and In the Matter of Federal-State Joint Board on Universal Service, CC Docket 96-45, and Forward Looking Mechanism for High Cost Support for Non-rural LECs, CC Docket 97-160, Further Notice of Proposed Rulemaking, Released May 28, 1999, ¶ 204-209.